

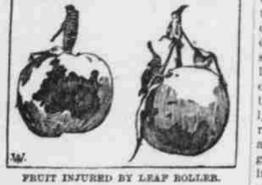
Farm and Garden

FOES OF THE APPLE.

Some Little Known Pests Found in American Orchards.

One of the reasons why the apple leaf roller (*Archips rosana*) has received so little attention from the scientific fruit grower is because it has never existed in numbers sufficient to be regarded as a positive menace. Now, however, it seems to be largely on the increase, and with the prospect of finding it added to the already too long list of our apple tree pests it is well to know something of it and what is to be expected from it if it should become plentiful.

The larvae are active, cylindrical, pale green or reddish brown insects with a deep brown head and with the first body division (prothorax) and first two pairs of jointed legs also deep brown. The false legs are well developed and are colored like the body.

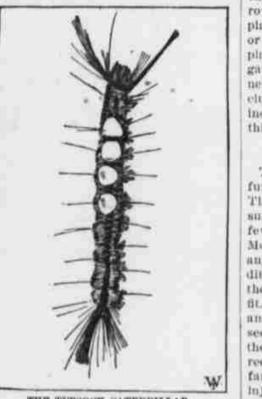


FRUIT INJURED BY LEAF ROLLER.

A few slender hairs arise from the head and body. When ready to become pupae they draw the leaves together and form a shelter in which the change takes place. They measure when full grown rather more than half an inch long.

The pupa is light brown and much shorter. An example preserved in alcohol and probably somewhat shrunken measures a fortieth of an inch in length. The head end is pro-convex. The antennae arise at each side of the pro-convex front, curve outward and backward, then return toward the middle line on the central side, where they terminate with the second pair of legs a short distance anterior to the posterior margin of the wing cases. The thorax is decidedly convex above, descending to the abdomen, which is also arched, and terminates in a rather stout, flat spine, with a couple of small curved hooks at its end. The abdomen is roughened about by a series of denticles on each somite, ending on each side near the spiracle.

Adults are provided with broad front wings, appearing as if abruptly cut off



THE TUSOCK CATERPILLAR.

at the ends, the anterior margin strongly arched at the base and a trifle incurved near the tip. The general color of the front wings and body is siliceous, or leather color, with an oblique dusky band beginning at the middle of the anterior margin and extending to the inner angle of the wing. This mark may be obscure in old examples, but some trace of it is generally present. It has given the species the name oblique banded leaf roller. The apex of the front wings is occupied by another dusky mark. The outer half of the hind wing is pale yellow, the inner half dusky.

Numerous other plants besides apple are attacked by this species, among them clover, cotton, strawberry, rose, plum, birch, bean, honeysuckle, cherry and larch. The species occurs from the Atlantic to the Pacific ocean.

Another threatened evil is the tussock caterpillar, which seems to be multiplying rapidly in middle west orchards. It is a singular caterpillar, with two long tufts of black hairs arising one at each side of the first body division (prothorax) and a similar one at the hind end of the body. They feed singly and finally produce small moths, the male black winged, the female wingless.

The tussock caterpillar became known to some American orchardists for the first time during the summer of 1907. It was very common then, working apparently in conjunction with the fall webworm in destroying the leaves of fruit and shade trees. It is present every season, but ordinarily does but little harm. Two broods develop, the first appearing in April and May, the second about the first of August.

MUSHROOM CULTURE.

Simple Methods That Will Yield Rich Returns.

For mushroom growing a greenhouse is not needed. Any building which protects the crop from rain, wind and cold will do. Mushrooms do best in a moderate temperature, say from 45 to 55 degrees. They are easily hurt by drip. The air should be moist and stationary, no drafts. Light is not needed. They are really a winter crop, because it is easier to heat a structure than to cool it down. When warm weather sets in insects often attack the crop and ruin it. Generally the first beds are prepared in September or October and the last in March.

To make a mushroom bed use fresh horse manure, such as one would get in a livery barn. It should be from grain fed animals, bedded with hay or straw. Sawdust or shavings are not suitable. Shake out the coarsest straw and throw the material into a heap to start heating.

It should be moderately moist, neither wet nor at all dry. As soon as heating has commenced fork the pile over to prevent burning, and repeat this three or four times every two days. When the material assumes a dark brown or blackish color and smells rather sweet it is ready to form into beds. These may be fifteen to eighteen inches deep and of any suitable width or length. Pack down firmly and wait three or four days to allow reheating. Try with a thermometer, and if not higher than 85 or 90 degrees insert spawn every ten or twelve inches apart each way. Place the spawn an inch or two deep and cover the whole bed with a light dressing of loam, say two inches deep, to hold heat and moisture, and form a firm rooting place for the crop. Mushrooms dislike to be watered; hence moisture should be preserved rather than supplied.

An Unappreciated Plant.

Chives is a vegetable not widely known in this country. It is native to the northern borders of the United States as well as in some parts of Europe, where it is popular. The plant belongs to the onion family, and its leaves are used for seasoning in soups, salads, etc., and are preferred to onions by many persons because they are much milder and more tender. Europeans use chives for seasoning scrambled eggs and similar dishes.

The culture of chives is simple. The plant will grow in any ordinary garden soil. It is usually propagated by division of the roots, because it does not seed readily. The roots or clumps of roots may be purchased at moderate prices. The clumps should be planted in beds about nine inches apart in rows which are two feet apart. The planting may be done in either spring or autumn. The chives may also be planted in the border of the vegetable garden and makes an excellent permanent border. As a border plant the clumps should be planted about six inches apart. The leaves will grow thickly and form a dense green mat.

Pasture in New England.

The pasture problem threatens the future of New England dairy farming. The old hill pastures are slowly but surely running out and are keeping fewer and fewer cattle every year. Most of them cannot be plowed at any reasonable cost under present conditions of farm labor, and clearing off the bushes is of only temporary benefit. Unless pastures can be plowed and cultivated for a few years there seems to be no hope for them, and they gradually turn into wood lots, thus reducing the dairy capacity of the farm. Many pastures are needlessly injured by turning the stock out too early in the spring, especially when it has been eaten close the preceding year. They tramp the soil too wet and gnaw the young plants too close to the ground. It is much better to let the grass get a good start, then put on the stock long enough to eat down the grass and move them to another pasture. Unless pastures are large enough to be divided in this way they quickly become injured under ordinary methods. It is an expensive way, but perhaps it is the only way to manage without grazing the land too close.

The Irish (?) Potato.

The potato is a native of the Andes, particularly of Chile and Peru, and some writers claim that it was found growing wild as far north as the Toluca gorge in southern Colorado. It probably was first introduced into Europe by the Spaniards about the middle of the sixteenth century. In 1526 it was taken to England from Virginia, where, however, it was probably derived from a Spanish source. Its progress in Europe was slow, its culture, even in Ireland, not becoming general until the middle of the eighteenth century, but it is now a staple food in most temperate climates.

Farm and Garden

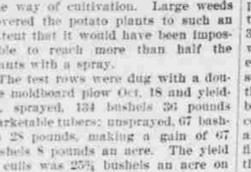
ENTERPRISE PAYS.

Progressive Methods—Good Staples Are the Secrets of Success. The progressive farmer is the one who scores at the markets. Good methods in raising crops, the selecting of staples for which the demand is greater than the supply, these are the considerations that count for success. One farmer in New York experimented with a spraying apparatus in raising potatoes and results justified the expense because the increased gain of sixty-seven bushels an acre gave a cash profit of \$37.15 an acre, or \$40.20 on the field. The spraying cost only \$1.05 an acre for labor, materials, etc. The experiment was tried on fifteen acres of potatoes, which were sprayed four times to prevent injuries by blight and insects. Three rows 600 feet long and 2½ feet apart were left unsprayed for a check. Bordeaux was

THE WHITE GRUB.

A Dangerous Insect Enemy of the Fruit Tree.

The peach borer or white grub, which bores holes through and under the bark of the roots of peach trees, weakens and often kills trees and may be considered one of the greatest enemies the peach has to contend with. This insect changes from a worm to the eggs hatch, and the little borers, scarcely large enough to be seen, make their way down to the ground at the base of the tree. When warm weather comes in spring they begin active work and increase rapidly in size, working first in the bark of the roots nearest the base of the tree and then extending down four or six inches into the lower roots, eating their way as they go. The worst work is done in May, June and July, and these are the months when the peach trees should have most careful attention. Young peach trees require more attention than older trees. The roots of older trees are often so large, coarse and tough as not to be susceptible to serious injury, but the young trees may be destroyed by one grub.



THE WAY OF CULTIVATION.

The best way to dig with a double moldboard plow Oct. 18 and yield, 134 bushels 26 pounds marketable tubers; unsprayed, 67 bushels 28 pounds, making a gain of 67 bushels 8 pounds an acre. The yield of culls was 25½ bushels an acre on the sprayed and 29 2/3 on the unsprayed. The loss from rot was somewhat greater on the unsprayed rows than on the sprayed, but not large in either case. It is doubtful, however, that the gain represented was due wholly to spraying. The owner says both sprayed and unsprayed had practically the same chance, but if anything the unsprayed rows suffered somewhat more from insects, which were treated once with paris green applied with a powder gun, while the sprayed rows received one application of paris green in Bordeaux at the first spraying.

The cost of spraying fifteen acres four times was as follows: Three



SEA KALE.

hundred and eighty-four pounds copper sulphate at 6 cents, \$23.04; one and one-half barrels lime at \$1.35, \$2.03; twenty-six and one-half pounds paris green at 14 cents, \$3.71; forty hours' labor for team at 25 cents, \$10; forty hours for man, at 15 cents, \$6; water on sprayer, \$1; total, \$45.78, or \$3.05 an acre. At this rate the cost of each spraying was 70½ cents. The market price of potatoes at picking time was 60 cents a bushel. At that rate the crop should be worth \$10.20; subtracting \$3.05 (the cost of spraying), the net profit is \$7.15 an acre.

There are many plants little known to the market grower that, if rightly pushed, would enjoy a ready sale. Sea kale, for instance, will furnish a spring vegetable ahead of asparagus. From seed sown in May good plants can be set into a permanent bed in August or September and will remain for years. Earth is lightly plowed over the bed to a height of about a foot in early spring, and when the shoots come through this covering they are cut off to the roots. This gives one stalks of kale much resembling celery. Put the leaves apart as soon would celery, cook in boiling salted water until tender and serve with drawn butter, melted butter or with or without vinegar, as taste desires. This is a most delightful dish and, being extremely early, would, along with rhubarb, be a money maker.

These are only instances of the way that intelligence may make profitable.

The Sweet Potato Belt.

The northern limit for sweet potato culture is roughly indicated by a line drawn from the border line of Massachusetts and Connecticut on the east westward to the northeast corner of Colorado, but the area where it is possible commercially would be considerably south of this, except in the Mississippi valley, where it extends well into Iowa, Illinois and Indiana.

THE WHEAT.

Binding and Shocking It So as to Get Best Results. From the time the wheat stands waving yellow in the field until it is in the hands of the miller is an important period. The cutting of the wheat may not be a difficult task, but much depends on how well the grain is gathered and bound and shocked. If the machine does not gather the grain well, a good deal of it will be lost falling down before the sickle or straggling out from beneath the awrons. Care should be taken to avoid this. The binder should also gather the straw evenly, so that the bundles may not look ragged or part be lost in the shocking. The binder should be shifted just right, so that the bundles may be bound near the middle. Binding too close to the butts or heads will make them inconvenient to handle, as well as cause the dropping out of a part of the bundles.

THE BEAN CROP.

Good Soil and Economy of Space Will Make It Pay. The raising of white beans is a great industry in many sections, and it is profitable because the output is as cheap a staple as wheat or corn. Like these crops, it is a foodstuff which has keeping quality. The bean growing industry has gravitated to the poorer lands, so that but little of it is found in the corn belt. And yet there are places in the corn belt, and many of them, where beans might be grown to advantage. Sandy knolls or worn-out fields which will only make twenty bushels of corn per acre will return a greater cash product if planted to beans.

Bean culture was once considered very laborious, but it is not necessarily so now. By the use of modern machinery it is made easy. They may be planted with a two horse corn planter, cultivated with riding plows and weeder, pulled when ripe, thrashed and even sorted by machinery.

To make the most of the space the hills may be only six inches apart, but the rows should be wide enough to permit horse culture. When planted in this way and carefully cultivated, if the ground is free from weeds, the crop may be carried through by horse-power. But if the soil is foul one hand hoeing will be needed. The crop is loaded from the puller into hay-racks and hauled to the barn. Spread upon the barn floor or left, it will be ready for thrashing after two weeks of dry weather. Before marketing sorting is absolutely necessary. The old plan was to get the family together in the evening about the kitchen table and each by hand-picked out the bad specimens. But the modern bean sorter is a small machine and cheap, which you may take into any room. The motion is controlled by a treadle, and a slowly rotating canvas carrier brings the beans to

your hand as fast as you can look them over, one spray man doing the work of five by the old system.

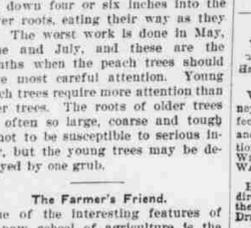
THE WHITE GRUB.

A Dangerous Insect Enemy of the Fruit Tree.

The peach borer or white grub, which bores holes through and under the bark of the roots of peach trees, weakens and often kills trees and may be considered one of the greatest enemies the peach has to contend with. This insect changes from a worm to the eggs hatch, and the little borers, scarcely large enough to be seen, make their way down to the ground at the base of the tree. When warm weather comes in spring they begin active work and increase rapidly in size, working first in the bark of the roots nearest the base of the tree and then extending down four or six inches into the lower roots, eating their way as they go. The worst work is done in May, June and July, and these are the months when the peach trees should have most careful attention. Young peach trees require more attention than older trees. The roots of older trees are often so large, coarse and tough as not to be susceptible to serious injury, but the young trees may be destroyed by one grub.

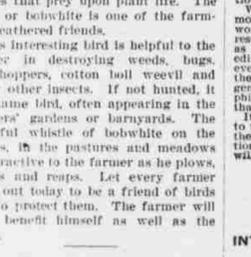
The Farmer's Friend.

One of the interesting features of the new school of agriculture is the recognition of the helpfulness of many feathered wild tenants of our farms. Thanks to the investigation of the department of agriculture, many birds which were once ruthlessly destroyed by the ignorant pot hunter are now carefully protected because of their usefulness in keeping down the insect



THE QUAIL.

hordes that prey upon plant life. The quail or bobwhite is one of the farm-keepers' best friends. This interesting bird is helpful to the farmer in destroying weeds, bugs, grasshoppers, cotton boll weevil and many other insects. If not hunted, it is a tame bird, often appearing in the farmer's garden or barnyard. The cheerful whistle of bobwhite on the fences, in the pastures and meadows is attractive to the farmer as he plows, plants and reaps. Let every farmer start out today to be a friend of birds and to protect them. The farmer will thus benefit himself as well as the birds.



THE QUAIL.

THE SWEET POTATO BELT.

The northern limit for sweet potato culture is roughly indicated by a line drawn from the border line of Massachusetts and Connecticut on the east westward to the northeast corner of Colorado, but the area where it is possible commercially would be considerably south of this, except in the Mississippi valley, where it extends well into Iowa, Illinois and Indiana.

THE WHEAT.

Binding and Shocking It So as to Get Best Results. From the time the wheat stands waving yellow in the field until it is in the hands of the miller is an important period. The cutting of the wheat may not be a difficult task, but much depends on how well the grain is gathered and bound and shocked. If the machine does not gather the grain well, a good deal of it will be lost falling down before the sickle or straggling out from beneath the awrons. Care should be taken to avoid this. The binder should also gather the straw evenly, so that the bundles may not look ragged or part be lost in the shocking. The binder should be shifted just right, so that the bundles may be bound near the middle. Binding too close to the butts or heads will make them inconvenient to handle, as well as cause the dropping out of a part of the bundles.

THE BEAN CROP.

Good Soil and Economy of Space Will Make It Pay. The raising of white beans is a great industry in many sections, and it is profitable because the output is as cheap a staple as wheat or corn. Like these crops, it is a foodstuff which has keeping quality. The bean growing industry has gravitated to the poorer lands, so that but little of it is found in the corn belt. And yet there are places in the corn belt, and many of them, where beans might be grown to advantage. Sandy knolls or worn-out fields which will only make twenty bushels of corn per acre will return a greater cash product if planted to beans.

Bean culture was once considered very laborious, but it is not necessarily so now. By the use of modern machinery it is made easy. They may be planted with a two horse corn planter, cultivated with riding plows and weeder, pulled when ripe, thrashed and even sorted by machinery.

To make the most of the space the hills may be only six inches apart, but the rows should be wide enough to permit horse culture. When planted in this way and carefully cultivated, if the ground is free from weeds, the crop may be carried through by horse-power. But if the soil is foul one hand hoeing will be needed. The crop is loaded from the puller into hay-racks and hauled to the barn. Spread upon the barn floor or left, it will be ready for thrashing after two weeks of dry weather. Before marketing sorting is absolutely necessary. The old plan was to get the family together in the evening about the kitchen table and each by hand-picked out the bad specimens. But the modern bean sorter is a small machine and cheap, which you may take into any room. The motion is controlled by a treadle, and a slowly rotating canvas carrier brings the beans to

sugar, starch, albumen, etc., are carried up by the sap to the seed bearing pods. To a marked extent, nature is assisted by the natural law of heat and cold to produce a sweating or condensation of moisture, which we call dew. This takes place in the corolla of the flower, making it more easy for the plant to deposit its overflow of sugar, starch, albumen, etc., in the dew already in the flower.

This sweet nectar is carried up by the sap and discharged in the dew when the sun rises evaporation takes place, and the result is a tiny drop of nectar in the cup of the flower. The bee goes to the flower and with its long silken tongue slips up this drop of nectar and deposits it into its honey sack back of the throat.

The bee is provided with a stomach for its physical well being back of this storage stomach, and all the honey that goes to this stomach is used for the life or physical demands of the bee. When the bee has its store of honey tank full of nectar it straightway flies to the hive and exudes it into the cell. The bee is endowed with the power of exuding as naturally as in taking, so there is nothing wonderful about it except the natural curiosity of the matter.

HOW TO THIS!

Webster One Hundred Dollars Reward for each copy of Webster's International Dictionary that cannot be cured by F. J. CHEENEY & CO., Props., Toledo, O. We the undersigned, have known F. J. Cheney for the last 15 years, and believe him perfectly honorable in all business transactions and financially able to carry out any obligations made by him. WEST TEXAS, Wholesale Druggists, Toledo, O. WALKER, KIRKMAN & MARVIN, Wholesale Druggists, Toledo, O. Hall's Cataract Cure taken internally, acting directly upon the blood and mucous surfaces of the system. Price, 75c per bottle. Sold by all Druggists. Testimonials free.

Hell's Family Pills are the best.

TEA

The way to buy tea is in packages; somebody is responsible for it. Your grocer returns your money if you don't like Schilling's Best; we pay him.

The Publisher's Claims Sustained

UNITED STATES COURT OF CLAIMS The Publishers of Webster's International Dictionary allege that it "is, in fact, the popular Cyclopaedia thoroughly re-edited in every detail, and vastly enriched in every part, with the purpose of adapting it to meet the larger and severer requirements of another generation."

We are of the opinion that this allegation most clearly and accurately describes the work that has been accomplished, and the result that has been reached. The Dictionary, as it now stands, has been thoroughly re-edited in every detail, has been corrected, every part, and is admirably adapted to meet the larger and severer requirements of a generation which demands a more popular, philosophical knowledge than any generation that the world has ever contained.

It is perhaps needless to add that we refer to the Dictionary in our judicial work as of the highest authority in accuracy of definition; and that in the future as in the past it will be the source of constant reference.

CHARLES C. KOTT, Chief Justice, LAWRENCE WELDON, JUDGE DAVIS, JUSTICE STANTON J. PELLER, JUSTICE CHARLES H. HOWE, Judge.

The above refers to WEBSTER'S INTERNATIONAL DICTIONARY

THE GRAND PRIZE (the highest award) was given to the International at the World's Fair, St. Louis.

GET THE LATEST AND BEST You will be interested in our specimen pages, sent free.

G. & C. MERRIAM CO., PUBLISHERS, SPRINGFIELD, MASS.

Recently Enlarged

25,000 New Words New Gazetteer of the World with more than 25,000 titles, based on the latest census returns.

New Biographical Dictionary containing the names of over 10,000 noted persons, date of birth, death, etc.

Edited by W. T. HARRIS, Ph. D., LL.D., United States Commissioner of Education. 2380 Quarto Pages New Type, 500 Illustrations, Rich Bindings. Needed in Every Home

Also Webster's Collegiate Dictionary, 1116 Pages, 100 Illustrations. Regular Edition 75c in 10c. 10c. De Luxe Edition \$1.00 in 15c. Printed from new plates, on little paper, 2 beautiful bindings.

FREE, "Dictionary Writings," illustrated pamphlet. G. & C. MERRIAM CO., Publishers, Springfield, Mass.

DeWitt's Witch Salve For Piles, Burns, Sores.

THE NEW IDEA THE ORIGINAL LAXATIVE THE COUGH SYRUP

KENNEDY'S LAXATIVE HONEY AND TAR Moves the Bowels Best for Children Red Cross Emblem on Every Bottle

For Sale by STAFRIN DRUG CO. Dallas, and M. THOMPSON, Falls City.

TO-NIGHT

If you are feeling out-of-sorts, take an NR Tablet, and you will feel better in the morning. They will make you look just right. "NATURE'S REMEDY" strengthens the Stomach, Liver, Kidneys and purifies the Blood, does its work thoroughly and pleasantly, yet it never gives, weakens or otherwise invariably making the user feel stronger and better.

Better Than Pills For Liver Ills.

Get a 25c. **Nature's Remedy** One Tablet
BOX. NR-TABLETS-NR GIVES RELIEF.

BELT & CHERRINGTON, Dallas, Oregon.

DO YOU KNOW THE WET WEATHER COMFORT AND PROTECTION afforded by a SLICKER?

Clean - Light - Durable

Guaranteed Waterproof

1900 Everywhere

A POWER CO. BOSTON, U.S.A.

KILL THE COUGH AND CURE THE LUNGS

WITH Dr. King's New Discovery

FOR COUGHS, COLDS AND ALL THROAT AND LUNG TROUBLES.

GUARANTEED SATISFACTORY OR MONEY REFUNDED.

ATTORNEY AT LAW

Ed. F. COAD,

Office in Court-house

DALLAS, OREGON

FOLEY'S HONEY AND TAR

for children safe, sure. No opiates

NEISS & CONNAWAY PHOTO ENGRAVERS

ARTIST ILLUSTRATORS

MAGAZINE AND BOOKLET COVERS AND ILLUSTRATIONS

COMIC AND JUVENILE POST CARD CATALOGS AND LABELS

109 SECOND STREET PORTLAND OREGON

Kodol Dyspepsia Cure

Digests what you eat.

FRIEND TO FRIEND.

The personal recommendations of people who have been cured of coughs and colds by Chamberlain's Cough Remedy have done more than all else to make it a staple article of trade and commerce over a large part of the civilized world.

AN INSTANCE.

Lucy Suddeth, of Lenoir, N. C., had been troubled with a very bad cough for over a year. She says: "A friend brought me a bottle of Chamberlain's Cough Remedy, brought it to me and insisted that I should take it. I did so and to my surprise it helped me. Four bottles of it cured me of my cough."

KENNEDY'S LAXATIVE HONEY AND TAR

Best for Children Red Cross Emblem on Every Bottle

For Sale by Druggists.

FOLEY'S KIDNEY CURE

Will cure any case of Kidney or Bladder Disease not beyond the reach of medicine. No medicine can do more.

Cures Backache Corrects Irregularities Do not risk having Bright's Disease or Diabetes

For Sale by STAFRIN DRUG CO. Dallas, and M. THOMPSON, Falls City.